

ABSTRACT OF THE DISCLOSURE

A method of creating an image 4 obtained from say a camera 1 to obtain a substantially linear representation of the brightness of the image includes, for each of
 5 a set of pixels (x, y) in a two dimensional array, calculating, in a computer 3, an estimate of the true image intensity (i_{xy}) as a weighted average of n samples of the apparent image intensity ($v_{n,xy}$). This is calculated as:

$$10 \quad \hat{i}_{xy} = \frac{\sum_n \left(w_{n,xy} \left(\frac{v_{n,xy} - C}{KT_n} \right) \right)}{\sum_n w_{n,xy}} = \frac{1}{K} \frac{\sum_n \left(w_{n,xy} \left(\frac{v_{n,xy} - C}{T_n} \right) \right)}{\sum_n w_{n,xy}}$$

where $v_{n,xy}$ is the apparent intensity measured, T_n is the exposure time, K is the gain
 of the system, C is an offset and $w_{n,xy}$ is a weighting factor which is defined to
 15 maximise the signal to noise ratio and discard insignificant, that is saturated or near
 zero, values. Thereafter each of the values \hat{i}_{xy} is saved together with other data
 representing the image 4, before the image is output to a display 5 or to a printing
 device.